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Social Media Addiction in Young Adult Patients with Anxiety Disorders and Depression

ABSTRACT

Objective: Although the relationship between social media addiction (SMA) and mental health is bidirectional, there have been very few attempts to investigate patients with depression or anxiety disorders in terms of SMA. The first aim of this study is to determine whether young adult patients diagnosed with depression or anxiety disorders have a tendency to become addicted to social media. The second aim of the study is to examine the effects of 6 DSM-based personality traits (dependent, histrionic, narcissistic, obsessive-compulsive, borderline, and paranoid) that commonly coexist with these disorders on SMA.

Methods: This study was carried out with 276 participants between the ages of 18 and 35 in the Psychiatry Outpatient Clinic in Gazi University Hospital, Turkey. Seventy-three patients diagnosed with depression, 80 patients diagnosed with anxiety disorders, and 123 healthy controls were recruited for the study. The SMA Scale, Hospital Anxiety and Depression Scale, and the Personality Belief Questionnaire-Short Form were administered to the participants.

Results: Patients with anxiety disorders (PAD) and patients with depression (PD) were more addicted to social media than healthy controls (HC) despite similar frequencies of social media use. Dependent, histrionic, narcissistic, obsessive-compulsive, borderline, and paranoid personality features in HC increased the susceptibility to SMA. Borderline and dependent personality features comorbid with PAD increased the susceptibility to SMA. None of the personality traits comorbid with PD had an effect on SMA.

Conclusion: The present study will serve as a base for future studies which explore factors that can make PAD or PD more vulnerable to SMA.

Keywords: Anxiety disorders, depression, mental health, personality, social media

Introduction

Social media has become a part of the private and professional lives of many people all over the world. People have witnessed social network interactions adding a new social dimension to daily life and relationships in platforms such as Facebook, Twitter, Instagram, and Whatsapp over the last decade. It is estimated that the number of social media users worldwide will increase and reach 3 billion in 2021.[1]

Social media addiction (SMA) is defined as having a strong motivation toward excessive social media use (SMU) and being overly concerned about social media, which impairs social and psychological well-being.[2] Although SMA is not classified in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), it has been identified as a potential behavioral addiction associated with impairments in academic performance, physical health, interpersonal relationships, and occupational life.[3]

Young adulthood is a time of increased SMU among some users.[2] Social media serves as an important socialization platform in which young adults put forward their developing autonomy, explore their identity, and maintain social relationships.[4] Social media provides a sense

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of constant social connection with its rewarding and reinforcing side and this increases the frequency of use.[5] Subrahmanyam et al[6] have reported that excessive Facebook use is beneficial for early adult users experiencing low self-esteem and low life-satisfaction. On the other hand, excessive SMU may be a symptom of more serious underlying problems such as relationship or individual problems that induce addictive use of social media as a coping mechanism.[7] It has been found that there is a strong positive correlation between excessive SMU and young adults with depression and anxiety.[8]

Social media users' personality features may be a crucial factor leading them to engage in social media. Most studies on the relationship between personality and SMA have often been based on the Five-Factor Model of Personality. Correa et al[9] have revealed that there is a significant correlation between extraversion, openness to experience personality traits, and SMU. So far, there has been little research directly investigating the relationship between SMA and DSM-based personality features.[10] Moreover, it is a well-known fact that there is a high comorbidity between depression, anxiety disorders, and personality disorders.[11,12] However, there has been no study in the literature investigating the effects of personality features, which coexist with depression or anxiety disorders on SMA.

There have been considerable limitations in the existing literature that investigate the relationship between SMA and mental health. The sample of most studies consisted of the general population. Symptoms of depression or anxiety disorders were generally assessed with self-report measurements. Therefore, the results of studies may fail to represent depression or anxiety disorders, which is actually a clinical diagnosis. Previous studies have mainly focused on the influence of SMA on mental health-related outcomes. However, the relationship between SMA and mental health is bidirectional.[13] Surprisingly, there have been very few attempts to investigate patients with depression (PD) or patients with anxiety disorders (PAD) in terms of SMA. In this study, the first aim is to compare young adult PAD or PD and healthy controls (HC) in terms of SMA. The second aim is to reveal the possible effects of 6 DSM-based personality traits (dependent, histrionic, narcissistic, obsessive-compulsive, borderline, and paranoid) that commonly coexist with these disorders on SMA.

MAIN POINTS

- *Despite a similar frequency of social media use, a significant difference was found in patients with depression and patients with anxiety disorders compared to healthy controls in total scores of the Social Media Addiction Scale.*
- *In this study, mood modification, conflict, and relapse aspects of social media addiction were observed to be more predominant in patients with depression and patients with anxiety disorders than healthy controls. The salient aspect of social media addiction was its predominance only in patients with anxiety disorders than healthy controls.*
- *It was found that dependent, histrionic, narcissistic, obsessive-compulsive, borderline, and paranoid personality features in healthy controls, and borderline and dependent personality features in patients with anxiety disorders, increased the susceptibility to social media addiction. Surprisingly, it was found that none of the personality features in patients with depression increased the susceptibility to social media addiction.*

Methods

Sample

This study was carried out with 281 participants between the ages of 18 and 35 in the Gazi University Psychiatric Outpatient Clinic. Seventy-six PD, 82 PAD, and 123 HC participated in the study with a convenience sampling method. Three patients from the depression group and 2 patients from the anxiety disorders group were excluded due to incomplete or stereotyped responses to questions. Therefore, our study group consisted of 73 PD, 80 PAD, and 123 HC. Depression and anxiety disorders were diagnosed as an outcome of the clinical interview, in patients meeting the symptoms of these disorders in the DSM-5. The HC comprised Gazi University students, employees, and relatives of patients who agreed to participate in the study. The exclusion criteria for HC were the existence any of psychiatric disorders, psychiatric treatment history, and a diagnosis of mental retardation in the medical history. The criteria for selecting participants were as follows: (a) young adult; (b) have at least one social media account; and (c) depression or anxiety disorders diagnosed without any comorbid psychiatric disorders based on the clinical interview (only for the patient group). After the clinical interview, the patient was informed about the content and details of the study. Instruments of the study were administered after obtaining consent from the volunteers who accepted to participate in the study. All responses were anonymous and no personally identifiable information was requested. In addition, a written informed consent form was signed by all participants. Ethical approval was obtained from the Institutional Review Board of Gazi University (July 2017; E.108015). Data were collected from August 1 to October 1, 2017.

Data Collection Tools

Sociodemographic Data Form (SDF): The Sociodemographic Data Form (SDF) included the participants' age, gender, marital status, educational level, and occupation. The participants' ages were classified into 2 categories as 18-24 and 25-34. Marital status was classified as married or unmarried. Educational levels were classified as high school, university, and postgraduate degrees. The working status was classified as employed, unemployed, and student.

Three questions were asked of the participants, to rate how frequently they used social media. These questions were about average daily time spent on social media ($\leq$1 hour, 1-3 hours, $\geq$ 3 hours), the daily number of times they logged-in to social media accounts ($\leq$10, 11-20, $\geq$ 21), and the ratio of time spent on social media/internet on an ordinary day (less than half, almost half, more than half, almost all the time).

Social Media Addiction Scale (SMAS): The Social Media Addiction Scale (SMAS) was developed by Tutgun-Ünal and Deniz[14] in the Turkish language, with a comprehensive pool of items created using internet addiction, problematic internet use, and Facebook addiction studies. SMAS has 41 items and 4 subdimensions (salience, mood modification, relapse, and conflict).[14] The scale is scored as a 5-point Likert scale (1 = never, 5 = always), and Cronbach's α is 0.967. The lowest score is 41, and the highest score is 205. The higher scores on the scale indicate that SMA has increased. Those with a total score of 41-73 are grouped as not addicted to social media, 74 and above as those with low, moderate, high, and extreme addiction to social media. In this study, a score of 73 and below were not classified as

addicted to social media, but 74 and above were classified as addicted to social media, regardless of addiction severity. In the current study, Cronbach's α is 0.971.

Personality Belief Questionnaire-Short Form (PBQ-SF): The Personality Belief Questionnaire-Short Form (PBQ-SF) is a 65-item self-report questionnaire used to assess features of personality beliefs according to DSM-IV.[15] PBQ-SF includes 10 subscales indicating DSM-5 personality disorders (dependent, histrionic, narcissistic, obsessive-compulsive, borderline, avoidant, passive-aggressive, schizoid, paranoid, antisocial). The reliability internal consistency coefficient was specified as 0.92 in the Turkish adaptation study by Taymur et al.[16] Questionnaire scoring is on a 6-point Likert scale (0 = I do not believe at all, 5 = I totally believe). A total score for each subscale is obtained by summing across relevant items. In the current study, Cronbach's α is 0.959.

Hospital Anxiety and Depression Scale (HADS): The Hospital Anxiety and Depression Scale (HADS) was designed to measure both anxiety and depression in outpatient populations.[17] HADS is a self-report scale and consists of a total of 14 items, including 7 items for anxiety symptoms, and 7 items for depression symptoms. The items are assessed through a Likert scale, ranging from 0 to 3, with the higher scores indicating more severe anxiety and depression. Based on a study with the Turkish version of HADS, cut-off points are 10 for the anxiety subdimension and 7 for the depression subdimension.[18] In the current study, Cronbach's α is 0.861.

Statistical Analysis

The SPSS v23.0 (IBM Corp., Armonk, NY, USA) was used for data analyses. The numbers, percentages, arithmetic mean, standard deviation, median, and interquartile range values distributions were used for descriptive statistics. The chi-square test was used to compare qualitative data, and the Fisher–Freeman–Halton test was used when necessary. The Kolmogorov–Smirnov test was used to investigate the conformity of the data for normal distribution. However, non-parametric tests were used in the analysis since the scales included sequential variables. The Mann–Whitney *U*-test was used to compare the 2 groups, and the Kruskal–Wallis *H* test to compare the 3 groups. If a significant difference was detected by Kruskal–Wallis variance analysis, the Mann–Whitney *U*-test was used to determine the groups between which the difference was significant. The Bonferroni correction was used to reduce the likelihood of type 1 errors. The corrected type 1 error rate was accepted as 0.0167 after the correction (type 1 error rate/number of analyses performed = 0.05/3 = 0.0167). This situation is specified as a footnote in Table 3. The type 1 error rate was taken as 0.05 in other analyses.

Results

Participants' sociodemographic characteristics, including age, gender, marital status, educational level, and working status, are shown in Table 1. There were 151 (54.7%) female and 125 (45.3%) male participants; 23 (8.3%) were married and 253 (91.7%) were unmarried; 195 (70.6%) were between the ages of 18 and 24, and 81 (29.4%) were between the ages of 25 and 34; 11 (4%) were high school graduates, 249 (90.2%) were university graduates, 16 (5.8%) were postgraduate; 49 (17.7%) were unemployed, 139 (50.3%) were employed, and 88 (32%) were students. There was no significant difference between the PD, PAD, and HC groups in terms of gender ($P = .332$), age ($P = .062$), marital status ($P = .638$), educational level ($P = .156$), and working status ($P = .902$).

Table 1. Sociodemographic Characteristics of Groups

	Healthy controls (n = 123)	Depression (n = 73)	Anxiety disorders (n = 80)	
Variables	n (%)	n (%)	n (%)	***P***
Gender				
Female	68 (55.3)	35 (47.9)	48 (60.0)	.332
Male	55 (44.7)	38 (52.1)	32 (40.0)	
Marital status				
Married	9 (7.3)	8 (11.0)	6 (7.5)	.638
Unmarried	114 (92.7)	65 (89.0)	74 (92.5)	
Age				
18-24	85 (69.1)	46 (63.0)	64 (80.0)	.062
25-34	38 (30.9)	27 (37.0)	16 (20.0)	
Educational levels				
High school	3 (2.4)	6 (8.2)	2 (2.5)	.156
University	111 (90.2)	62 (84.9)	76 (95.0)	
Postgraduate degree	9 (7.3)	5 (6.8)	2 (2.5)	
Working status				
Unemployed	21 (17.1)	15 (20.5)	13 (16.3)	.902
Employed	60 (48.8)	36 (49.3)	43 (53.8)	
Student	42 (34.1)	22 (30.1)	24 (30.0)	

The frequency of the participants' SMU is shown in Table 2. There was no significant difference between the PD, PAD, and HC groups in terms of average daily time spent on social media ($P = .379$), the daily frequency of social media log-in ($P = .184$), and the ratio of time spent on social media/internet on an ordinary day ($P = .577$).

Total and subdimension scores of SMAS were compared between the PD, PAD, and HC groups. Significant differences were found ($P < .001$ for each). Group comparison of SMAS subdimensions and HADS subtests are shown in Table 3. Mood modification, conflict, and relapse subdimensions and total scores of SMAS were significantly higher in the PD and PAD groups than HC. The salience subdimension of SMAS was significantly higher in the PAD group only than HC.

Effects of personality features on SMA in groups are shown in Figure 1. Consequently, dependent ($Z = -3.582$, $P < .001$), obsessive-compulsive ($Z = 3.664$, $P < .001$), narcissistic ($Z = -3.494$, $P < .001$), histrionic ($Z = -3.102$, $P = .002$), borderline ($Z = -3.395$, $P = .001$), and paranoid ($Z = -3.189$, $P = .001$) personality features in the HC group were found significantly higher in the presence of SMA. Borderline ($Z = -3.687$, $P < .001$) and dependent ($Z = -2.365$, $P = .018$) personality features in the PAD group were found significantly higher in the presence of SMA. However, none of the personality features in the PD group showed significant differences in the presence of SMA ($P > .05$ for each).

Discussion

Our findings suggested that there were no statistically significant differences in frequency of SMU in the PD, PAD, and HC groups (average daily time spent on social media, the daily number of

Table 2. Daily Social Media Use Characteristics

	Healthy controls (n = 123)	Depression (n = 73)	Anxiety disorders (n = 80)	
Variables	**n (%)**	**n (%)**	**n (%)**	***P***
Time spent on social media				
≤ 1 hour	36 (29.3)	20 (27.4)	14 (17.5)	.379
1-3 hours	59 (48.0)	34 (46.6)	45 (56.3)	
≥ 3 hours	28 (22.8)	19 (26.0)	21 (26.3)	
Number of times log-in to social media accounts				
≤ 10	92 (74.8)	55 (75.3)	48 (60.0)	.184
11-20	22 (17.9)	12 (16.4)	21 (26.3)	
≥ 21	9 (7.3)	6 (8.2)	11 (13.8)	
Ratio of time spent on social media/internet per day				
Less than half	31 (25.2)	18 (24.7)	14 (17.5)	.577
Almost half	34 (27.6)	20 (27.4)	18 (22.5)	
More than half	42 (34.1)	22 (30.1)	32 (40.0)	
Almost all	16 (13.0)	13 (17.8)	16 (20.0)	

times they logged-in to social media accounts and the ratio of time spent on social media/internet on an ordinary day). There was a significant difference in total scores of SMAS in the PAD and PD groups compared to the HC group, despite a similar frequency of SMU. This finding is consistent with a prior study demonstrating that the association between excessive SMU and depression may be more indicative of personal experience than the volume or frequency of SMU.[19] However, this finding is contrary to previous studies, which have suggested that more daily time on social media, and increased volume or frequency of SMU are associated with both depression and anxiety.[20,21] For PD or PAD, SMA may depend on SMU patterns and personal experiences rather than time spent on social media. According to Xu and Tan,[22] if social media is perceived as a crucial mediator to alleviate the burden of an individual's stress, loneliness, or depressed mood, the transition from normal to problematic SMU occurs. SMU is associated with lower levels of loneliness, greater

Table 3. Group Comparison of SMAS Subdimensions and HADS Subtests

Variables	Healthy controls[1] (n=123)	Depression[2] (n=73)	Anxiety disorders[3] (n=80)		Statistical analysis	
						Post-Hoc analysis
SMAS	**Median (IQR)**	**Median (IQR)**	**Median (IQR)**	***P***	**Duals**	***P***
SMAS-S	29 (22-35)	33 (22-41)	35 (28-40)	<.001	1-2	.069
					1-3	<.001[a]
					2-3	.133
SMAS-MM	10 (7-14)	13 (9-16.5)	13 (10-16.5)	<.001	1-2	.001[a]
					1-3	<.001[a]
					2-3	.767
SMAS-R	7(5-10)	10 (5-14)	10 (7-13)	<.001	1-2	.001[a]
					1-3	<.001[a]
					2-3	.490
SMAS-C	23 (20-32)	38 (23.5-50.5)	32 (26-41.5)	<.001	1-2	<.001[a]
					1-3	<.001[a]
					2-3	.580
SMAS-Total	72 (57-88)	96 (61.5-120)	91 (73-105.5)	<.001	1-2	<.001[a]
					1-3	<.001[a]
					2-3	.943
HADS-A	5 (3-6)	8 (7-10)	10 (10-12)	<.001	1-2	<.001[a]
					1-3	<.001[a]
					2-3	<.001[a]
HADS-D	3 (1-4)	9 (8-10)	5 (3-7)	<.001	1-2	<.001[a]
					1-3	<.001[a]
					2-3	<.001[a]

IQR, interquartile ranges; SMAS, Social Media Addiction Scale; SMAS-S, Social Media Addiction Scale salience subdimension; SMAS-MM, Social Media Addiction Scale mood modification subdimension; SMAS-R, Social Media Addiction Scale relapse subdimension; SMAS-C, Social Media Addiction Scale conflict subdimension; SMAS-Total, Social Media Addiction Scale total scores; HADS-A, Hospital Anxiety and Depression Scale anxiety subtest; HADS-D, Hospital Anxiety and Depression Scale depression subtest.
[a]Whose significance continues after the Bonferroni correction (corrected type 1 error rate = 0.0167).
The numbers 1, 2, and 3 were used for the group comparisons in the duals column of the table.

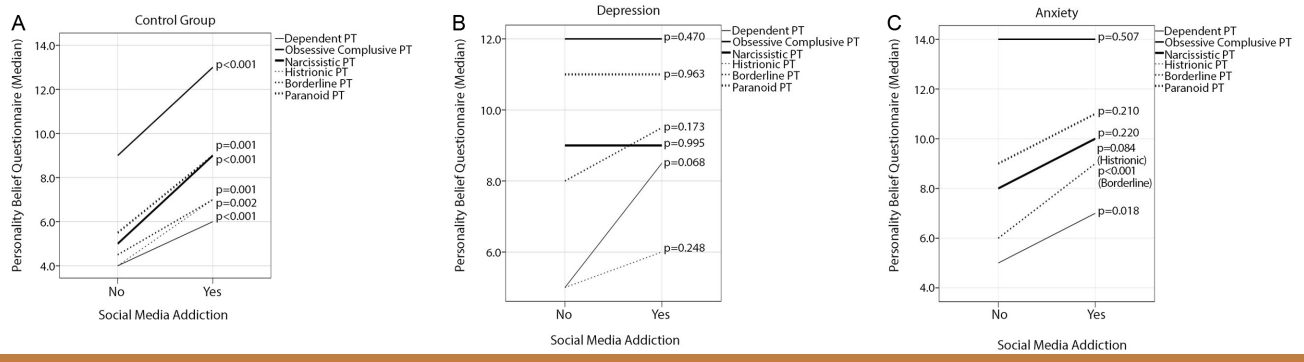

Figure 1. The effect of personality features on social media addiction in groups of control, depression, and anxiety disorders. (A) Comparison of personality traits in the control group according to the presence of social media addiction; (B) Comparison of personality traits in the depression group according to the presence of social media addiction; (C) Comparison of personality traits in the anxiety disorders group according to the presence of social media addiction. Since the median values are similar for histrionic and borderline personality traits in the anxiety disorders group, these variables are located on the same line. The *P* values obtained from the comparisons of these variables are expressed next to the line.

feelings of social connectedness, a higher level of life-satisfaction, self-esteem, and social support.[23,24]

SMA consists of common components as follows: salience (SMU becoming the most important activity that dominates thinking, feeling, and behavior), mood modification (engaging in social media leads to favorable mood swings), conflict (interpersonal problems as a result of SMU), and relapse (unsuccessful attempts to control SMU).[3] This study demonstrated that mood modification, conflict, and relapse aspects of SMA were more predominant in the PAD and PD groups than the HC group. The salience aspect of SMA was predominant only in PAD than HC. The predominance of the conflict subdimension in PD and PAD groups may be associated with more interpersonal problems. These disorders limit active participation in the social environment. Depressive and anxious moods lead PAD and PD to prefer online communication over in-person interaction to fulfill social needs. A review of SMU research declares that there have been increased symptoms of depression associated with SMU, including negative social interactions and comparisons.[13] The reason why the salience and mood modification subdimensions have dominance in the PAD group may be associated with less fear of being judged and negatively evaluated in social media. Increased social media connectedness may correlate with higher levels of subjective well-being and increased social capital for PD.[25] The prominence of the relapse subdimension in both PAD and PD groups may be related to the anxious or depressive mood that predisposes people who try to cope with addiction to repeat the addictive behavior.[26]

In this study, we also aimed to reveal the possible effects of 6 DSM-based personality features (dependent, histrionic, narcissistic, obsessive-compulsive, borderline, and paranoid) on the relationship between mental health and SMA in young adulthood. It was found that all 6 personality features in the HC group, and the borderline and dependent personality features in the PAD group increased the susceptibility to SMA. Surprisingly, it was found that none of the personality features in the PD group increased the susceptibility to SMA. Individuals with histrionic personality features use social media more frequently to manage their social media and have more interactions on these platforms.[27] It is known that they worry so much about maintaining and losing popularity. The possibility of reaching thousands of people even with a single post makes social media indispensable in their life. It has been suggested that dependent personality features are associated with anxious attachment.[28] Attachment theory indicates that anxious attachment styles are associated with a risk of psychiatric disorders, especially anxiety disorders.[29] It has been stated that the anxious attachment style is an important predictor of SMA.[30] Borderline personality features are associated with high levels of excessive reassurance seeking.[31] Anxiety leads to interpersonal reassurance-seeking behaviors so that individuals with anxiety may engage in extreme reassurance-seeking to endorse their self-worth or reduce feelings of uncertainty/worry by posting more frequently to get more "favs" and "likes."[32]

Several limitations in this study should be noted. The research is limited by the fact that it is cross-sectional in design. The cross-sectional design may preclude making a causal inference across significant associations. Participants were classified as addicted or not addicted to social media, regardless of addiction severity. We evaluated the 6 personality belief dimensions (dependent, histrionic, narcissistic, obsessive-compulsive, borderline, and paranoid), which had been found more associated with SMA in previous studies.[10,27] The other 4 personality belief dimensions (schizoid, schizotypal, avoidant, antisocial) from the PBQ-SF were not included in the study. Further studies which take these variables into account can overcome these issues.

This study has been one of the first attempts to thoroughly examine the association between mental health, personality features, and SMA among PAD and PD. One of the most important conclusions from this study is that PAD or PD are more vulnerable to SMA than HC, although there is no difference in the amount of SMU. We suggest that it will be useful to investigate the factors that make PAD and PD more susceptible to SMA. We think that not only depression or anxiety disorders but also comorbid personality patterns affect SMA and that future studies will further clarify these relationships.

Ethics Committee Approval: *Ethics committee approval was received for this study from the Institutional Review Board of Gazi University (Approval Date: July, 2017; Approval Number: E.108015).*

Informed Consent: *Written informed consent was obtained from the individuals who participated in this study.*

Peer-review: *Externally peer-reviewed.*

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